HEWLETT PACKARD

Installation and Reference Guide

HP J4091A

HP ProCurve 100Base-T Hub 8

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Applicable Product
HP J4091A ProCurve 100Base-T Hub 8

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http://www.hp.com/go/network_city

Package Contents

Carefully unpack the contents of the package and verify them against the checklist given below.

Package Checklist

- ☑ HP ProCurve 100Base-T Hub 8 (Part No. HP J4091A)
- ☑ Your hub is shipped with one of these AC power adapters:

Australia/New Zealand/Argentina	(0950-3269)
Europe/Russia	(0950-3268)
China	(0950-2809)
Japan	(0950-3267)
United Kingdom/Hong Kong	(0950-3270)
U.S./Canada/Mexico/Taiwan/Brazil/Columbia	(0950-3274)

- ☑ Four rubber foot pads
- ☑ Installation and Reference Guide (J4091-90001)
- ☑ Warranty booklet
- ☑ README notice

Please inform your dealer immediately should there be any wrong, missing, or damaged parts.

If possible, retain the carton, including the original packing materials. Use them again to repack the unit in case there is a need to return it for repair.

Quick Installation

The HP J4091A ProCurve 100Base-T Hub 8 contains 8 100Base-T Fast Ethernet ports. The smart design built into the front display panel provides a friendly interface that simplifies installation and network troubleshooting. If you are already familiar with basic network operations, you should be able to install this hub as described below:

1. Unpack the HP 100Base-T Hub 8.
2. Find a location close to the network devices you need to connect, and within easy reach of an electrical outlet.
3. Attach the footpads and then place the hub on a desktop or any other flat surface. If you are installing multiple hubs, you can stack them on top of each other. A mounting kit is available (5183-7210).
4. Connect any devices that use a standard network interface to the RJ-45 (MDI-X) ports (e.g., a workstation, server, bridge or router). Use 100Ω Category 5 STP or 100Ω Category 5 UTP cable to connect to the hub, and be sure the length of any twisted-pair connection does not exceed 100 meters. Refer to Chapter 3 for sample configurations.
5. To cascade to another hub or switch, run straight-through twisted-pair cable from the (8MDI) cascade port on this hub to any (MDI-X) port on the other device (or vice versa). Refer to Figure 3.2.
6. If necessary, you can also cascade between two ports using a crossover cable. However, be sure not to exceed the maximum length between end nodes as described in Chapter 2.
7. This hub can serve as a standalone repeater for small networks, can be cascaded with compatible devices (e.g., Fast Ethernet hub or switch), or can be connected to a network interconnection device (e.g., Fast Ethernet bridge or router).

8. Verify network communications by ensuring that:
   - you have made all the necessary connections
   - you can access any connected resources
   - the hub's indicators show link status
9. If you encounter any problems in installing the HP 100Base-T Hub 8, refer to Chapter 2 for a detailed description of installation procedures, Chapter 3 for sample configurations, or Appendix A for help in troubleshooting.

Note: Refer to Chapter 2 for a more detailed description of calculating the maximum cable length permitted between two end nodes for Fast Ethernet.

About this Guide

This guide is designed for the experienced network installer. It describes how to install and operate the HP ProCurve 100Base-T Hub 8.

This manual covers the following topics:

Chapter 1 - **Product Overview**
Brief description of this hub and a summary of its important features and specifications.

Chapter 2 - **Installing the System**
Installing an HP 100Base-T Hub 8 and making basic network connections.

Chapter 3 - **Configuring the Network**
Sample network configurations for a local area network.

Chapter 4 - **Hardware Reference**
Detailed description of indicator panel and ports.

Appendices-
Troubleshooting, cable assignments, and product specifications.

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Chapter 1: Product Overview

Introduction to Fast Ethernet

Standard 10 Mbits/s Ethernet has served well for past generations of 286 and 386 machines performing simple file transfers. However, with the inevitable growth in corporate network size and the introduction of fully-functional 32-bit PC architectures, and operating systems running complex applications, 10 Mbits/s Ethernet has become a serious bottleneck.

With the recent flood of choices for upgrading media bandwidth, 100 Mbits/s Fast Ethernet has become the most popular because of its low cost, compatibility with existing Ethernet applications, and the fact that it can run on top of an installed base of twisted-pair cabling. Fast Ethernet can be easily integrated into an existing 10 Mbits/s Ethernet environment with no need for protocol translation or changes to network software.

HP ProCurve 100Base-T Hub 8

The HP J4091A ProCurve 100Base-T Hub 8 is an 8-port Class II repeater. With this type of hub, you can connect computers and other devices together in an twisted-pair cable network. This hub is compliant with the IEEE 802.3u 100Base-T standard.

Basic Features

- Transmits data at 100 Mbits/s
- Conforms to the IEEE 802.3u Class II repeater specification for 100Base-T
- Provides 8 RJ-45 100Base-T ports (using MDI-X wiring)
- Port 8 can serve as an MDI-X port (for connection to network devices such as workstations or servers) or as an MDI daisy-chain port (for connection to network devices such as hubs or switches), eliminating the need for crossover cables
- Supports 100Ω Category 5 shielded or unshielded cable (STP or UTP)

- Friendly design that monitors network utilization, collisions, link and port partition status
- LED indicator panel includes Utilization rate indicators and Collision indicator for reporting hub activity and facilitating problem diagnosis
- Automatically partitions bad ports to protect the network system
- Automatic polarity detection and correction permits automatic adjustment for wiring errors
- Plug-and-play operation

The HP 100Base-T Hub 8 also supports basic system safeguards, including automatic partitioning and reconnection, jabber lockup protection, and automatic polarity detection for network cabling.

- With automatic partitioning and reconnection, any port is automatically isolated if excessive collisions occur on it. When the condition is corrected, the port is automatically reconnected.
- With the jabber lock-up function, the hub automatically stops transmission of abnormal Ethernet frames that may cause data loss for all network users. (Jabber refers to abnormal Ethernet frames which are much too long and may come from a malfunctioning Ethernet card.)
- With automatic polarity detection, the hub recognizes and adjusts for attached cable assemblies which may be wired with incorrect polarity on the receive pair.

Chapter 2: Installing the System

This chapter provides information on installing the HP 100Base-T Hub 8, establishing network connections, and configuring the system. You may install this hub on any level surface (e.g., a table or shelf) or in a standard EIA equipment rack. A mounting kit is available (5183-7210).

Please take note of the following minimum site requirements before you begin.

Pre-Installation Requirements

Before you start actual hardware installation, make sure you can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other network devices that are to be connected. Verify the following installation requirements:

- Power connector requirements: 13-19 Vdc, 800 mA.
- Power source: One of the following external power adapters.

Country	Adapter P/N	Input Specs.*	Output Specs.*
China	0950-3269	220-240 Vac, 50 Hz	19 Vdc, 800 mA
USA	0950-3274	110-127 Vac, 60 Hz	19 Vdc, 800 mA
Europe	0950-3268	230 Vac, 50 Hz	19 Vdc, 800 mA
Australia	0950-3269	220-240 Vac, 50 Hz	19 Vdc, 800 mA
Japan	0950-3267	100 Vac, 50/60 Hz	19 Vdc, 0.8 A
UK	0950-3270	220-240 Vac, 50 Hz	19 Vdc, 800 mA
Switzerland	0950-3268	230 Vac, 50 Hz	19 Vdc, 800 mA
Denmark	0950-3268	230 Vac, 50 Hz	19 Vdc, 800 mA

* Specifications shown on adapter label.

- The hub should be located in a cool dry place, with at least 10 cm. of space at the front and back for ventilation.
- Place the hub out of direct sunlight, and away from heat sources or areas with a high amount of electromagnetic interference.

- Check if network cables and connectors needed for installation are available.
- Find a suitable location at the center of the devices you want to link, and near a power outlet.

Connecting the Hub System

The HP 100Base-T Hub 8 has 8 RJ-45 ports and 1 RJ-45 cascade port. The ports allow you to make connections to devices such as a workstation or server. You can also cascade to another compatible hub or switch by connecting an MDI port on one device (e.g., port 8MDI on this hub) to an MDI-X port on the other device. Or you can cascade from an MDI port on another device to any MDI-X port on this hub. See Figure 4.1.

Making a Connection via an MDI-X Port

You can connect an RJ-45 port on the hub to any device that uses a standard network interface such as a workstation or server, or also to a network interconnection device such as a bridge or router (depending on the port type implemented).

1. Prepare the network devices you wish to network. Make sure you have installed suitable 100Base-T network interface cards for making a connection to any of the hub's ports. You also need to prepare straight-through shielded or unshielded twisted-pair cables with RJ-45 plugs at both ends. Use 100Ω Category 5 cable for all connections.
2. Connect one end of the cable to the RJ-45 port of the network interface card, and the other end to any available (MDI-X) port on the hub. When inserting an RJ-45 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated. Using the hub in a standalone configuration, you can network up to 8 nodes.

Caution: Do not plug a phone jack connector into the RJ-45 port. This may damage the hub. Use only twisted-pair cables with RJ-45 connectors that conform with FCC standards.

Notes: 1. When connecting to port 8MDI-X, do not use port 8MDI.
2. Make sure each twisted-pair cable does not exceed 100 meters.

Making a Connection via the MDI Cascade Port

1. To make a direct connection to another compatible Class II repeater or switch, use the 8MDI cascade port. When connecting to this port, remember not to use port 8MDI-X.
2. Prepare straight-through shielded or unshielded twisted-pair cables with RJ-45 plugs at both ends. Use 100Ω Category 5 cable for all connections. Connect one end of the cable to Port 8MDI on this hub, and the other end to a standard MDI-X port on the other device. When inserting an RJ-45 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated.

Notes: 1. When connecting to port 8MDI, do not use port 8MDI-X.
2. Make sure the length of twisted-pair cable does not exceed 100 meters.
3. To connect to another hub or switch, you may also run straight-through twisted-pair cabling from an MDI-X port on this hub to a cascade port on another device. However, if you must connect to another hub or switch via similar port types at both ends of the cable, use crossover cabling.

Distance Limit for Fast Ethernet Cabling

For 100Base-T, network diameter is very important, because each packet must propagate through the Ethernet collision domain before the next packet is sent. Every 100Base-T hub (repeater) adds a small propagation delay to the packet, which can be equated to a certain number of bit times. The propagation delay (repeater delay) of the HP 100Base-T Hub 8 is 80 bit times, or a cable equivalent length of 72 meters.

The 100Base-T maximum cable distance ("network diameter") is 367 meters. And the maximum distance from a hub to an end-node is 100 meters. To cascade two HP 100Base-T Hub 8s together, we must do this calculation:

For an end-node on one hub to communicate with an end-node on the other hub, the cable distance from end-nodes to hubs would be 100m + 100m (perhaps a bit less, but we should consider the "worst case"). The packets would traverse through both hubs, for a cable equivalent length of 72m + 72m. This gives:

```
    100m
    100m
     72m
+    72m
--------
    344m
```

The maximum "network diameter" for 100Base-T is 367m, so we can use a maximum of 367m - 344m, or 23m between the two hubs.

Providing Power to the Hub

1. Plug the adapter's power cord into the hub's receptacle.
2. Plug the AC adapter into an AC power source. When installing the HP 100Base-T Hub 8, note that the AC outlet must be located near the equipment and should be easily accessible.

Note: The hub does not have a power switch; it is powered on when the power adapter is plugged in.

Caution: Use only the power adapter that is supplied with the hub. Use of other adapters, including those meant for other HP network products, may result damage to the equipment and will void the warranty.

Verifying Port Status

Check each connection by viewing the port status indicators listed below. (For a more detailed description of these indicators, refer to Chapter 4.)

Link/Activity Steady green indicates a valid link. Blinking green indicates network activity.

Partition Indicates that the port has been isolated from the hub because excessive collisions have been detected.

If the Link status indicator is not functioning properly, or you experience any other difficulties in setting up the hub, refer to Appendix A.

Verifying System Operation

Verify that all attached devices have a valid connection. The hub monitors link status for each port. If any device is properly connected to the hub and transmitting a link beat signal, the Link indicator lights up for the corresponding port. If the Link indicator fails to light up when you connect a device to the hub, check the following items:

- Be sure the twisted-pair cable is properly attached to the connected device and the hub. Verify that the RJ-45 plug snaps into place when attached.
- Verify that if the cable is connected to an MDI-X port on the hub, the other end must be to an MDI port of the network device and vice versa. Test by alternately connecting to the 8MDI and 8MDI-X ports.
- See if the twisted-pair cable is functioning properly by using it for another port and attached device that already displays valid indications when connected to the network.
- Check the length of the twisted-pair connection to be sure it does not exceed 100 meters.
- Verify that the cable is Category 5.
- Test the adapter for an attached workstation by trying it in another computer that has been successfully connected to the network.

If you still can't resolve the problem, please refer to Troubleshooting in Appendix A.

Chapter 3: Configuring the Network

The HP ProCurve 100Base-T Hub 8 allows great flexibility in configuring your network. You can use it in a standalone or multiple hub configuration. Some of the common applications for this Fast Ethernet hub are described in this chapter.

Standalone

This hub can be used in a simple standalone configuration as illustrated below. In compliance with IEEE 802.3u standards, the maximum cable distance between the hub and any workstation is 100 meters for twisted-pair cable.

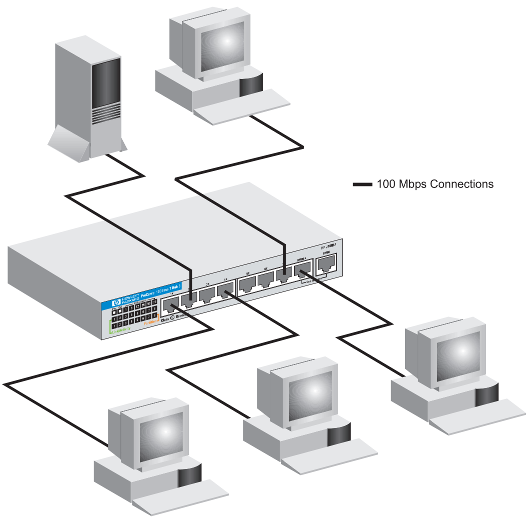


Figure 3.1 Standalone Configuration

Connecting Multiple Hubs

You can easily connect to another hub via the MDI cascade port. Figure 3.2 shows a sample configuration.

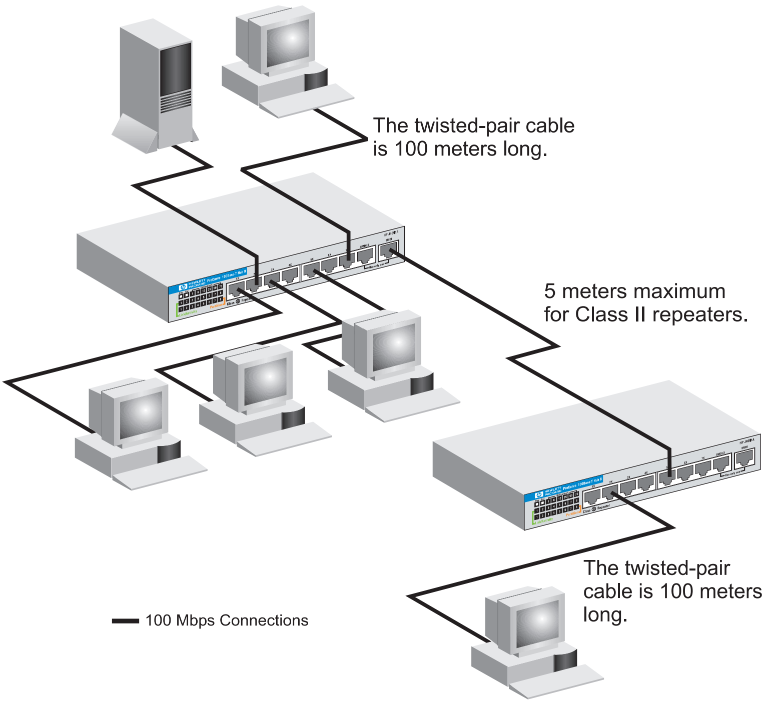


Figure 3.2 Multiple Hub Configuration Using the Cascade Port

Chapter 4: Hardware Reference

Before connecting any network device to this hub, please review Chapter 2 for information on system installation and Chapter 3 for a brief look at common network architectures. This chapter describes the hardware features of the HP ProCurve 100Base-T Hub 8. For easier management and control of the hub, familiarize yourself with the display indicators and ports.

Front Panel

There are 8 RJ-45 MDI-X ports and 1 RJ-45 MDI cascade port on the front panel. Moreover, the system indicators provide a simple interface for monitoring the hub. The front panel includes a power indicator, a statistical display for network traffic, a collision indicator and port status indicators as shown below.

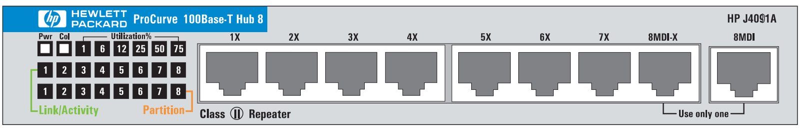


Figure 4.1 Front Panel

The indicator panel simplifies monitoring of various network conditions by providing LEDs that indicate the status of each port and the overall condition of the hub. It provides all the key information required to manage your network on a daily basis. The following pages list the indicators and their functions.

The front panel array provides indicators that show the utilization of network bandwidth and indicate the status of port connections as shown below.

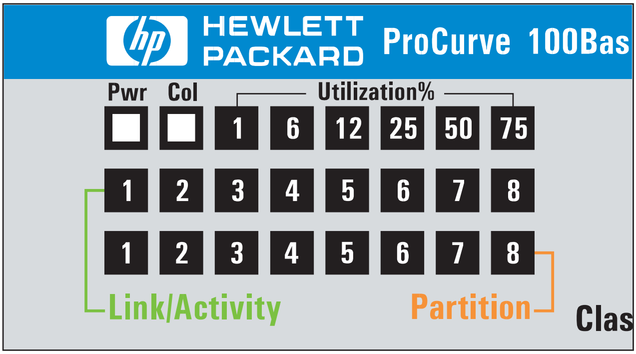


Figure 4.2 Indicators

Pwr

Color: Green

Function: Power indicator

Condition	Indication
ON	Unit is receiving power.
OFF	Power is disconnected, no power received.

Statistical Display for System Performance

Utilization - (Utilization%) The statistical indicators show the percentage of valid data passing through all ports compared to overall network bandwidth (updated every 0.5 seconds). There are 6 LEDs representing the percentage of network utilization. The corresponding LEDs light up to show that the utilization of LAN bandwidth has reached this level. When active, these LEDs behave like a stereo's equalizer display.

For example, if network utilization reaches 1%, the LED labeled 1% will light up. However, if network utilization rises above 1% (e.g., 12%), the LED labeled 12 and all the other LEDs before it (i.e., 1 and 6) will also light up in rapid succession. These indicators monitor the share of valid network frames handled by the hub within a 100 Mbit/s bandwidth. They provide a quick way to monitor the current traffic load relative to the network's capacity.

Col

Color: Yellow

Function: Intrahub packet collision

Condition	Indication
ON/BLINKING	Hub has detected two or more packets on the hub have run into each other, blocking successful arrival at their destination.
OFF	No collisions have been detected.

The relative rate of collision is indicated by the degree of brightness and blinking of the Col indicator.

Note: If the hub displays a high collision rate, check to see if any of the connected devices are malfunctioning or if a loop has been formed in your network connections. Otherwise, you may need to reconfigure your network to balance the traffic load.

Port Status Display

Link/Activity

Color: Green

Function: Detects a successful connection to another hub or end node on this port.

Detects packets being passed to a port on the hub.

Condition	Indication
ON	Hub detects a connection to another hub or end node on this port.
OFF	Hub does not detect a connection to another hub or end node on this port.
BLINKING	Hub detects packets being passed to this port.

Troubleshooting: If the Link LED does not light up when a device is connected to its corresponding port, check that both the hub and connected device are powered on. Check that the cable length does not exceed 100 meters. You should have standard, straight-through cables and not crossover or other specialized cables.

Partition

Color: Yellow

Function: Detects that a port was disabled because of bad packets being passed

Condition	Indication
ON	Hub has disabled the port because of excessive collisions detected at the port.
OFF	Hub port is enabled.

A port is temporarily partitioned when a line error or too many collisions are detected on the attached segment. While it is automatically partitioned, the port continues to receive data from the segment. However, data is not transmitted onto the segment. When the problem is corrected or a valid data packet is received through the port, the port is automatically reconnected. When partitioning occurs, the port's corresponding Partition LED will be continually lit (yellow light). Otherwise, this LED should be OFF (unlit).

Note: When a long run of collisions occur on the cable connected to a hub port (i.e., 64 collisions), that port is automatically partitioned by the hub. It is automatically reconnected when a collision-free data packet at least 512 bits long (i.e., a minimum size legal packet) passes through the port.

RJ-45 100Base-T Ports

This HP 100Base-T Hub 8 includes 8 100Base-T ports on the front panel; of which Port 8 can also serve as a cascade port. Connect the MDI-X ports to network devices such as workstations or servers, and the MDI port to a network interconnection device such as another hub or switch. Remember that you cannot connect to port 8 MDI-X and port 8 MDI at the same time.

Note: Use Category 5 straight-through twisted-pair cable (STP or UTP) for all standard connections. However, if you must cascade between two hubs using similar port types at both ends of the cable, use a crossover cable.

Rear Panel

The rear panel on the hub includes a power connector.

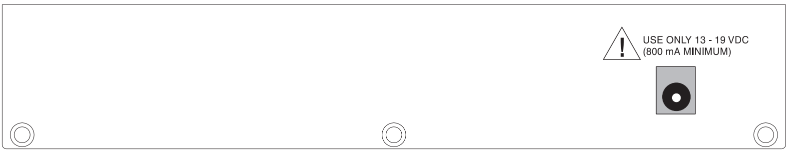


Figure 4.3 Rear Panel

Power Connector

The power connector accepts range (13-19 Vdc), 800 mA minimum.

Caution: Use only the power adapter supplied with the hub. Using other power adapters, including those meant for other HP networking products, may result in damage to the equipment and will void the warranty.

Appendix A: Troubleshooting

Diagnosing Hub Indicators

This Fast Ethernet hub can be easily monitored through its comprehensive panel indicators. This section describes common problems you may encounter and possible solutions.

Problem	Cause	Solution
One of the users on the network cannot communicate with another network device through the hub	Bad cable, bad connector, bad LAN adapter, cable length violation	Several possible solutions are: Find the port to which the user is currently connected. Check that the Link/Activity LED is on. If it is not, remove the cable from the port and connect it to another port. If the LED is still not on, connect it to another port. If the LED is still not on, use the "Test Link" option in the user's LAN Adapter test program to verify the communication path between two PCs (connected to the hub) is working. Connect a different cable from the end user to the hub. Perform a self-test on the LAN adapter in the user's computer and/or the device that cannot be reached. Verify cable lengths do not exceed 100 meters.
I have tried everything, but the hub still does not appear to be working	The hub or power supply may have failed	Try removing the AC adapter and reinserting it to see if the LEDs begin normal operation. Try a different electrical outlelt. If the problem persists, return the hub and AC adapter to your HP-authorized dealer or reseller following the instructions in the warranty booklet.
Partition indicator lights up	Hub has partitioned a port	If port partitioning has occurred, the hub will automatically enable the port when the faulty condition disappears.

Table A.1 Problems and Solutions

Use the diagnostic procedures described in the following section to verify that all other system components are functioning properly. If you still cannot resolve the problem, contact your HP-authorized dealer or reseller.

System Diagnostics

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g., the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

Cabling

1. Verify that the cabling type is correct. Be sure all cable connectors are securely seated in the required ports. Use 100Ω Category 5 straight-through cable for all standard twisted-pair connections.
2. Make sure all devices are connected to the network. Equipment may have been unintentionally disconnected from the network.
3. When cascading two devices using RJ-45 ports at both ends of the cable (i.e., not the MDI port), make sure a crossover cable is used. A cross-over cable should only be used if a cascade port is not available.

LAN Adapters

Make sure the network interface hardware and software drivers for the attached devices are functioning properly and are 100Base-T. Check the LAN adapters and associated drivers used in any attached workstation or server.

Physical Configuration

If problems occur after altering the network configuration, restore the original connections, then try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances and other physical aspects of the installation do not exceed 100Base-T specifications.

Hub Integrity

As a last resort verify the hub's integrity with a power-on reset. Turn the power to the hub off and then on a few times. If the problem still persists and you have completed all the preceding diagnoses, contact your HP-authorized dealer or reseller for further assistance.

Appendix B: Port Assignments

RJ-45 Port

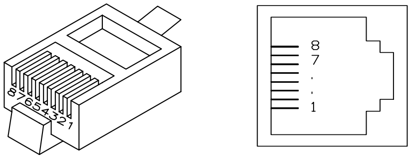
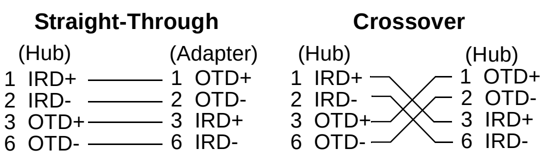


Figure B.1 RJ-45 Connector (on the Hub Side)

Pin	MDI-X Assignment (Port 1-8)	MDI Assignment (Cascade Port 8)
1	Receive Data +	Transmit Data +
2	Receive data -	Transmit Data -
3	Transmit Data +	Receive Data +
6	Transmit Data -	Receive data -
4,5,7,8	Not Used	Not Used

Table B.1 RJ-45 Pin Assignments

Schematics for both straight and crossover twisted-pair cable are shown below.



Appendix C: Specifications

Transmission Technique	Baseband
Topology	Star or Tree
Access Method	CSMA/CD, 100Mbit/s
Standards Conformance	IEEE 802.3u 100BASE-T
Media Supported	Unshielded or shielded twisted-pair cable (100Ω Category 5 STP/UTP)
Interfaces	8 RJ-45 MDI-X ports, 1 RJ-45 MDI cascade port
Hub-to-Workstation Distance	100 meters maximum
Cascade Distance (2 hubs)	5 meters maximum
Dimensions	196 mm x 116 mm x 36 mm (7.72" x 4.57" x 1.42")
Weight	635 grams (1.4 pounds)
Power Input	Range (13-19 Vdc), 0.8 Amp max.,
Temperature	0°C to 55°C/32° to 131°F (Operating) -40°C to 70°C/-40° to 158°F (Non-Operating)
Humidity (Noncondensing)	15% to 80% at 40°C / 104°F (Operating) 15% to 95% at 40°C / 104°F (Non-Operating)
Maximum Altitude	4.6 km / 15,000 ft (Operating) 4.6 km / 15,000 ft (Non-Operating
Certification	CE Mark
Emissions	FCC Class A, VCCI Class A, CISPR Class A
Safety	IEC 950: (1991)+A1, A2/EN609501(1992)+A1, A2 UL1950 CSA9SO NOM-019-SCFI-1993 NOM-009-SCFI-1993 TÜV/GS
Acoustic Noise	Geraeuschemission LwA= 50 dB fik tiven Arbeit Splatz nach DIN 4S635T.19

Appendix D:
Safety and Regulatory Statements

This chapter covers the following topics:

- mounting precautions
- power precautions
- safety and regulatory statements
- Declaration of Conformity

Mounting Precautions

When you put a hub into a rack, follow these mounting precautions:

- The rack or cabinet should be adequately secured to prevent it from becoming unstable and/or falling over. The hub should be mounted in a position toward the bottom of the rack for stability and to make it easier to stack the other hubs on top.
- Before mounting a hub, plan its location and orientation relative to other devices and equipment. Also consider the cabling that will be attached to the hub and the ports that will be used. Verify that there is room for the grouped cables to trail out from the side of the hub. Allow at least 2.54 cm (1 inch) in the front of the hub. In the back of the hub, allow at least 3.8 cm (1 1/2 inches) of space for the power cord.
- Ensure that the HP 100Base-T Hub 8 does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add together the amperage ratings from the nameplates of all your hubs (and other equipment) installed on the same circuits and compare the total with the rating limits for the supply circuits.
- Make sure that the power source circuits are properly grounded, then use the supplied power cord to connect the HP 100Base-T Hub 8s to the circuit. *See the Safety Statements in this chapter.*
- Do not block airflow around the sides and the back of the unit.

Note: If your installation requires a different power cord than the one supplied with the hub, be sure to use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the hub.

Do not install the hub in an environment where the operating ambient temperature might exceed 45×C (113×F).

Power Precautions

Follow these precautions when unplugging and plugging in power to the hub.

Caution

Use only the power adapter supplied with the HP 100Base-T Hub 8. Using other adapters, including those meant for other HP networking equipment, may result in damage to the equipment and will void the warranty.

Note

The hub does not have a power switch; it is powered on when the power connector is plugged in.

When installing the hub, note that an AC outlet must be installed near the equipment and should be easily accessible.

Safety Information

⚠	Documentation reference symbol. If the product is marked with this symbol, refer to the product documentation to get more information about the product.
WARNING	A WARNING in the manual denotes a hazard that can cause injury or death.
CAUTION	A CAUTION in the manual denotes a hazard that can damage equipment.
	Do not proceed beyond a WARNING or CAUTION notice until you have understood the hazardous conditions and have taken appropriate steps.

Grounding

These are safety class I products and have protective earthing terminals. There must be an uninterruptible safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

For LAN cable grounding:

- If your LAN covers an area served by more than one power distribution system, be sure their safety grounds are securely interconnected.
- LAN cables may occasionally be subject to hazardous transient voltages (such as lightning or disturbances in the electrical utilities power grid). Handle exposed metal components of the network with caution.

Servicing

There are no user-serviceable parts inside these products. Any servicing, adjustment, maintenance, or repair must be performed only by service-trained personnel.

These products do not have a power switch; they are powered on when the power cord is plugged in.

Informations concernant la sécurité

⚠	Symbole de référence à la documentation. Si le produit est marqué de ce symbole, reportez-vous à la documentation du produit afin d'obtenir des informations plus détaillées.
WARNING	Dans la documentation, un WARNING indique un danger susceptible d'entraîner des dommages corporels ou la mort.
CAUTION	Un texte de mise en garde intitulé CAUTION indique un danger susceptible de causer des dommages à l'équipement.
	Ne continuez pas au-delà d'une rubrique WARNING ou CAUTION avant d'avoir bien compris les conditions présentant un danger et pris les mesures appropriées.

Cet appareil est un produit de classe I et possède une borne de mise à la terre. La source d'alimentation principale doit être munie d'une prise de terre de sécurité installée aux bornes du câblage d'entrée, sur le cordon d'alimentation ou le cordon de raccordement fourni avec le produit. Lorsque cette protection semble avoir été endommagée, débrancher le cordon d'alimentation jusqu'à ce que la mise à la terre ait été réparée.

Mise à la terre du câble de réseau local:

- si votre réseau local s'étend sur une zone desservie par plus d'un système de distribution de puissance, assurez-vous que les prises de terre de sécurité soient convenablement interconnectées.
- Les câbles de réseaux locaux peuvent occasionnellement être soumis à des surtensions transitoires dangereuses (telles que la foudre ou des perturbations dans le réseau d'alimentation public). Manipulez les composants métalliques du réseau avec précautions.

Aucune pièce contenue à l'intérieur de ce produit ne peut être réparée par l'utilisateur. Tout dépannage, réglage, entretien ou réparation devra être confié exclusivement à un personnel qualifié.

Cet appareil ne comporte pas de commutateur principal ; la mise sous tension est effectuée par branchement du cordon d'alimentation.

Hinweise zur Sicherheit



Symbol für Dokumentationsverweis. Wenn das Produkt mit diesem Symbol markiert ist, schlagen Sie bitte in der Produktdokumentation nach, um mehr Informationen über das Produkt zu erhalten.

WARNING Symbol für Dokumentationsverweis. Wenn das Produkt mit diesem Symbol markiert ist, schlagen Sie bitte in der Produktdokumentation nach, um mehr Informationen über das Produkt zu erhalten.

CAUTION Symbol für Dokumentationsverweis. Wenn das Produkt mit diesem Symbol markiert ist, schlagen Sie bitte in der Produktdokumentation nach, um mehr Informationen über das Produkt zu erhalten.

Fahren Sie nach dem Hinweis WARNING oder CAUTION erst fort, nachdem Sie den Gefahrenzustand verstanden und die entsprechenden Maßnahmen ergriffen haben.

Dies ist ein Gerät der Sicherheitsklasse I und verfügt über einen schützenden Erdungsterminal. Der Betrieb des Geräts erfordert eine ununterbrochene Sicherheitserdung von der Hauptstromquelle zu den Geräteingabeterminals, den Netzkabeln oder dem mit Strom belieferten Netzkabelsatz voraus. Sobald Grund zur Annahme besteht, daß der Schutz beeinträchtigt worden ist, das Netzkabel aus der Wandsteckdose herausziehen, bis die Erdung wiederhergestellt ist.

Für LAN-Kabelerdung:

- Wenn Ihr LAN ein Gebiet umfaßt, das von mehr als einem Stromverteilungssystem beliefert wird, müssen Sie sich vergewissern, daß die Sicherheitserdungen fest untereinander verbunden sind.
- LAN-Kabel können gelegentlich gefährlichen Übergangsspannungen ausgesetzt werden (beispielsweise durch Blitz oder Störungen in dem Starkstromnetz des Elektrizitätswerks). Bei der Handhabung exponierter Metallbestandteile des Netzwerkes Vorsicht walten lassen.

Dieses Gerät enthält innen keine durch den Benutzer zu wartenden Teile. Wartungs-, Anpassungs-, Instandhaltungs- oder Reparaturarbeiten dürfen nur von geschultem Bedienungspersonal durchgeführt werden.

Dieses Gerät hat keinen Netzschalter; es wird beim Anschließen des Netzkabels eingeschaltet.

Considerazioni sulla sicurezza

	Simbolo di riferimento alla documentazione. Se il prodotto è contrassegnato da questo simbolo, fare riferimento alla documentazione sul prodotto per ulteriori informazioni su di esso.
WARNING	La dicitura WARNINGdenota un pericolo che può causare lesioni o morte.
CAUTION	La dicituraCAUTION denota un pericolo che può danneggiare le attrezzature.
	Non procedere oltre un avviso di WARNING o di CAUTIONprima di aver compreso le condizioni di rischio e aver provveduto alle misure del caso.

Questo prodotto è omologato nella classe di sicurezza I ed ha un terminale protettivo di collegamento a terra. Dev'essere installato un collegamento a terra di sicurezza, non interrompibile che vada dalla fonte d'alimentazione principale ai terminali d'entrata, al cavo d'alimentazione oppure al set cavo d'alimentazione fornito con il prodotto. Ogniqualvolta vi sia probabilità di danneggiamento della protezione, disinserite il cavo d'alimentazione fino a quando il collegaento a terra non sia stato ripristinato.

Per la messa a terra dei cavi LAN:

- se la vostra LAN copre un'area servita da più di un sistema di distribuzione elettrica, accertatevi che i collegamenti a terra di sicurezza siano ben collegati fra loro;
- i cavi LAN possono occasionalmente andare soggetti a pericolose tensioni transitorie (ad esempio, provocate da lampi o disturbi nella griglia d'alimentazione della società elettrica); siate cauti nel toccare parti esposte in metallo della rete.

Nessun componente di questo prodotto può essere riparato dall'utente. Qualsiasi lavoro di riparazione, messa a punto, manutenzione o assistenza va effettuato esclusivamente da personale specializzato.

Questo apparato non possiede un commutatore principale; si mette scotto tensione all'inserirsi il cavo d'alimentazione.

Consideraciones sobre seguridad

Símbolo de referencia a la documentación. Si el producto va marcado con este símbolo, consultar la documentación del producto a fin de obtener mayor información sobre el producto.

WARNING — Una WARNING en la documentación señala un riesgo que podría resultar en lesiones o la muerte.

CAUTION — Una CAUTION en la documentación señala un riesgo que podría resultar en averías al equipo.

No proseguir después de un símbolo de WARNING o CAUTION hasta no haber entendido las condiciones peligrosas y haber tomado las medidas apropiadas.

Este aparato se enmarca dentro de la clase I de seguridad y se encuentra protegido por una borna de puesta a tierra. Es preciso que exista una puesta a tierra continua desde la toma de alimentación eléctrica hasta las bornas de los cables de entrada del aparato, el cable de alimentación o el juego de cable de alimentación suministrado. Si existe la probabilidad de que la protección a tierra haya sufrido desperfectos, desenchufar el cable de alimentación hasta haberse subsanado el problema.

Puesta a tierra del cable de la red local (LAN):

- Si la LAN abarca un área cuyo suministro eléctrico proviene de más de una red de distribución de electricidad, cerciorarse de que las puestas a tierra estén conectadas entre sí de modo seguro.
- Es posible que los cables de la LAN se vean sometidos de vez en cuando a voltajes momentáneos que entrañen peligro (rayos o alteraciones en la red de energía eléctrica). Manejar con precaución los componentes de metal de la LAN que estén al descubierto.

Este aparato no contiene pieza alguna susceptible de reparación por parte del usuario. Todas las reparaciones, ajustes o servicio de mantenimiento debe realizarlos solamente el técnico.

Este producto no tiene interruptor de potencia; se activa cuando se enchufa el cable de alimentación.

Safety Information (Chinese)

HP 网络产品使用安全手册

使用须知

欢迎使用惠普网络产品，为了您及仪器的安全，请注意如下事项

1．仪器要和地线相接。要使用有正确接地插头的电源线，使用中国国家规定的220V电源。
2．避免高湿度和灰尘多的地方，否则易引起仪器内部部件的损坏。
3．避免接近高温，避免接近直接热源，如直射太阳光、暖气等其它发热体。
4．不得有异物或液体落入机内，以免部件短路。
5．不要将强磁体放置于仪器附近。

警告

为了防止火灾或触电事故，请不要将该机放置于淋雨或潮湿处。

安装

安装辅助管理模块请参看安装指南。

保修及技术支持

如果您按以上步骤正确使用但遇到了问题，或想了解其它产品性能，请按以下方式与我们联络。

如果是硬件故障:

1.与售出单位或当地维修机构联系。
2.惠普维修中心:

   北京市海淀区知春路56号　中航科技大厦
   邮政编码:　100086
   电话:　010-62625666 转 6101

如果是软件问题:

1.惠普技术支持中心热线电话:　010-62625666 转 5600 至5610
2.传真自动回复系统:　010-65055280

Safety Information (Japanese)

安全性の考慮

安全記号



マニュアル参照記号。製品にこの記号がついている場合はマニュアルを参照し、注意事項等をご確認ください。

WARNING　マニュアル中の「WARNING」は人身事故の原因となる危険を示します。

CAUTION　マニュアル中の「CAUTION」は装置破損の原因となる危険を示します。

「WARNING」や「CAUTION」の項は飛ばさないで必ずお読みください。危険性に関する記載事項をよく読み、正しい手順に従った上で次の事項に進んでください。

これは安全性クラス I の製品で保護用接地端子を備えています。主電源から製品の入力配線端子、電源コード、または添付の電源コード・セットまでの間、切れ目のない安全接地が存在することが必要です。もしこの保護回路が損なわれたことが推測されるときは、接地が修復されるまで電源コードを外しておいてください。

LAN ケーブルの接地に関して:

- もし貴社の LAN が複数の配電システムにより電力を受けている領域をカバーしている場合には、それらのシステムの安全接地が確実に相互に結合されていることを確認してください。
- LAN ケーブルは時として危険な過度電圧（例えば雷や、配電設備の電力網での障害）にさらされることがあります。露出した金属部分の取扱いには十分な注意をはらってください。

本製品の内部にはユーザーが修理できる部品はありません。サービス、調整、保守および修理はサービス訓練を受けた専門家におまかせください。

本製品には電源スイッチがありません。電源コードを接続したとき電源入となります。

Regulatory Statements

FCC Class A Statement (for U.S.A. Only)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area may cause interference in which case the user will be required to correct the interference at his own expense.

FCC Class B Statement (for U.S.A. Only) when using shielded cables:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Japan

VCCI Class A (For Japan Only)

この装置は，情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI Class B (For Japan Only)

この装置は，情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は，家庭環境で使用することを目的としていますが，この装置がラジオやテレビジョン受信機に近接して使用されると，受信障害を引き起こすことがあります。

取り扱い説明書に従って正しい取り扱いをして下さい。

Canada

This product complies with Class A Canadian EMC requirements when using unshielded cables and Class B EMC requirements when using shielded cables.

Korea

The top statement is for Class A products. The bottom statement is for Class B products.

사용자 안내문 (A급 기기)

이 기기는 업무용으로 전자파장해검정를 받은 기기이오니, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

사용자 안내문 (B급 기기)

이 기기는 비업무용으로 전자파장해검정을 받은 기기로서, 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

European Community

This equipment complies with ISO/IEC Guide 22 and EN55022 Class A with unshielded cables and EN55022. In a domestic environment, this product may cause radio interfe ence, in which case the user may be required to take adequate measures.

Taiwan

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Australia/New Zealand

Complies with Australia/New Zealand EMC Class A requirements.

Declaration of Conformity

The following Declaration of Conformity for the HP J4091A ProCurve 100Base-T Hub 8 complies with ISO/IEC Guide 22 and EN 45014. The declaration identifies the product, the manufacturer's name and address, and the specifications that are recognized in the European community.

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN45014

Manufacturer's Name: Hewlett-Packard Company

Manufacturer's Address: 8000 Foothills Blvd.
Roseville, CA 95747-5502
U.S.A.

declares that the product:

Product Name: HP ProCurve 100Base-T Hub-8

Model Number: HP J4091A

conforms to the following Product Specifications:

Safety: EN60950 (1992)+A1,A2 / IEC 950:1991+A1,A2

EMC: EN 55022 (1994) / CISPR-22 (1993) class A
EN 55022 (1994) / CISPR-22 (1993) class B*
EN50082-1 (1992)
IEC 1000-4-2 (1995), 4 kV CD, 8 kV AD
IEC 1000-4-3 (1995), 3 V/m
IEC 1000-4-4 (1995): 1 kV-(power line)
0.5 kV-(signal line)
ENV 50141 (1993), 3Vrms

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carries the CE marking accordingly. LEDs in this product(s) are Class-1 in accordance with EN60825-1:1994.

Tested with Hewlett-Packard Co. products only.

*This product has been tested to and passes Class B when shielded network cables are used.

Roseville, April 1, 1998

Karen Dorchak, Quality Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department TRE, Herrenberger Strasse 130, D-71034 Böblingen(FAX:+49-7031-14-3143).

Glossary

100Base-T

IEEE's specifications for 100 Mbit/s Ethernet using twisted-pair cable (100Ω STP or UTP). The maximum length of cable for a hub to end-node connection is 100 meters.

Collision

A condition in which two packets transmitted over a medium interfere with each other. Their interference makes both unintelligible.

Configuration

The way to set up a computer, server, or local area network.

Connection

A logical binding between two or more users of an interconnection service.

Cascade Port

An MDI RJ-45 port used to cascade compatible devices in a cascade configuration using straight-through twisted-pair cable. To cascade two devices, either run a connection from the cascade port on one device to an MDI-X port on the other device, or cascade the two devices by running crossover cable between similar port types on both devices.

Fast Ethernet

100 Mbit/s network communication system based on Ethernet and the CSMA/CD access method.

IEEE 802.3 Standard

Standard for the physical and electrical connections in local area networks developed by the IEEE. The IEEE 802.3u standard covers these same issues for 100 Mbit/s networks.

LED

Light emitting diode on the front panel of the hub used for monitoring a hub or network condition. An LED display corresponds to a hub condition.

Local Area Network (LAN)

A group of interconnected computers and support devices.

MDI Port (Medium Dependent Interface)

MDI is the IEEE standard for the twisted-pair interface. This RJ-45 port can be used with straight-through cable to connect the hub to a network interconnection device, such as another hub or a switch. Pin-out assignments are shown in Appendix B.

MDI-X Port (Medium Dependent Interface - Crossed)

This RJ-45 port, which crosses the receive and transmit signals internally, can be used with straight-through cable to connect the hub to any device that has a standard network interface (e.g., workstation, server, bridge or router). Pin-out assignments are shown in Appendix B.

RJ-45 Connector

Most common terminator for twisted-pair wiring.

Shielded Twisted-Pair (STP)

Twisted-pair wire covered with an external aluminum-foil or woven-copper shield designed to reduce excessive noise pick up or radiation. The STP cable refered to in this manual is also sometimes called screened twisted-pair (ScTP). Its impedance is 100Ω and has the same pin assignment as UTP. This cable should not be confused with the older 150Ω cable type designed by IBM.

Star Topology

Physical connections for this hub are limited to a star configuration (i.e., similar to a hub and spoke arrangement). This topology also requires that only one path exists between any two nodes, and that data transmitted by any node is concurrently available to all other nodes within the same local network (i.e., immediate collision domain).

Unshielded Twisted-Pair (UTP)

Cable composed of two insulated wires twisted together to reduce electrical interference; used in common telephone cord.

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